REMARKS

In response to the Official Action dated July 18, 2002, Applicant amends the application and requests reconsideration. In the Amendment, claims 12-14, 19, 20, 23, 32, 33, 36, 41, and 45-47 have been amended, and claim 48 has been added. No new matter has been added. Claims 12-48 are now pending and under examination.

The claims have been amended to correct informalities. New claim 48 is supported by original 20.

Claims 12-47 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite on various grounds.

With respect to the rejection of claims 12, 34 and 44, Applicant has deleted the language "if appropriate," replaced "and/or the intermediate ring" with "and the intermediate ring," and replaced "consist of" with "include" to make it clear that rings include both a metallic basic material and a nonmetallic material. With respect to the ground of rejection set forth in paragraph 3 of page 3 regarding the connecting layer limitations, Applicant respectfully requests that Examiner Le reconsider this rejection, because the claim language essentially states that one of the layers is formed on at least one of the rings. Applicant respectfully submits that this type of claim language is commonly used and is not indefinite.

With respect to the rejection of claims 14, 23, 36 and 46, Applicant has replaced $Fe_{2.3}N$ with Fe_2N or Fe_3N.

With respect to the rejection of claims 19, 32, 33 and 41, Applicant has replaced "the nitriding depth" with "nitriding depth."

With respect to the rejection of claim 20, Applicant has deleted the preferred thickness and made it the subject mater of new claim 48.

With respect to the rejection of claim 41, Applicant has replace the letter "g" with "m."

With respect to the rejection of claims 46 and 47, Applicant has replace the claimed subject matter from "a device" to "a method."

With respect to the rejection of claim 45-47, Applicant has amended the claims to use positive recitations.

Claims 12-47 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Pflaum* (U.S. Patent 4,618,049) in view of *Loeffler* (U.S. Patent 5,560,461), and further in view of *Kamody* (U.S. Patent 6,105,374). For the following reasons, Applicant respectfully requests reconsideration of this rejection.

1. **Elements of claimed invention not found in cited references**

The claimed invention has various features that are not disclosed or suggested by the cited references. For example, each of the independent claims recites that the friction surface of a ring, which is made of a metallic basic material, is nitride-hardened. This feature is not disclosed or suggested by the cited references. The Official Action, however, stated that *Pflaum* discloses this feature.

Applicant respectfully disagrees. *Pflaum* only discloses that a friction lining is formed from a thin layer (9) of chromium nitride that has been applied by sputtering (column 7, lines 50-59). Therefore, instead of nitride-hardening a metallic basic material, *Pflaum* merely applies a layer of chromium nitride by sputtering.

Additionally, each of the independent claims also recites that a ring is nitride hardened to form one of a non-metallic γ'-connecting layer and a non-metallic ε-connecting layer on a friction surface. This feature is also not disclosed or suggested by the cited references. The Official Action, however, stated that *Kamody* discloses this feature. Applicant's representative has carefully review this reference but did not find any reference to a non-metallic γ'-connecting layer and a non-metallic ε-connecting layer, which are formed by nitride hardening a metallic basic material.

In view of the above discussion, the rejection under 35 U.S.C. §103(a) is improper because the cited references do not disclose or suggest at least two features of the claimed invention.

2. Lack of motivation or suggestion to combine cited references

The MPEP requires that in order to establish a prima facie case of obviousness based on more than one reference, there must be some suggestion or motivation, either in the references or in the knowledge generally available to one of

ordinary skill in the art, to modify the reference or to combine reference teachings (MPEP §2143).

In the Official Action, the motivation to combine the teachings of *Pflaum* and *Kamody* is said to be that nitriding substantially increases surface hardness (see Official Action, last paragraph on page 9).

Applicant respectfully submits that this cannot provide the motivation to combine the teachings of *Pflaum* and *Kamody*, because there is no disclosure that lack of surface hardness or wearability is a problem with the friction surfaces of a synchronizing device. If this were a problem, it would be true that nitriding would solve the problem, and the motivation to combine the teachings of *Pflaum* and *Kamody* would exist. However, there is no disclosure that such a problem exists.

In the claimed invention, on the other hand, the problem to be solved is uneven and reduced coefficient of friction on the friction surface of a synchronizing device, which is caused by penetration of sulfur particles and other additives into the friction surfaces to reduce the coefficient of friction (see paragraphs 4 and 8 of the specification). Applicant discovered that the sulfur particles and other additives cannot penetrate into the γ'-connecting layer or the ε-connecting layer. Thus, the problem can be solved by creating a γ'-connecting layer or a ε-connecting layer on the friction surfaces of the synchronizing device. This motivation is not disclosed by the cited references.

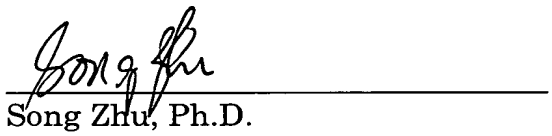
In view of the above discussion, Applicant respectfully submits that the Official Action did not provide the motivation or suggestion to combine the teachings of *Pflaum* and *Kamody*.

In light of the foregoing remarks, this application is considered to be in condition for allowance, and early passage of this case to issue is respectfully requested. If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #225/49630).

Respectfully submitted,

January 21, 2003



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VERSION WITH MARKINGS SHOWING CHANGES MADE

IN THE SPECIFICATION:

Paragraph **[0024]** has been amended as follows:

[0024] The nitriding depth of the conical surfaces 11 and 12 is about 200 to 800 μm and the γ'-connecting layer or ε-connecting layer is approximately 1 to 20 μm, preferably approximately 10 μm, thick. The γ'-connecting layer is an iron/nitrogen layer with the chemical designation Fe_4N. By contrast, the ε-connecting layer consists of the iron/nitrogen layer bearing the chemical designation [$Fe_{2.3}N$] Fe_2N or Fe_3N.

IN THE CLAIMS:

Claims 12-14, 19, 20, 23, 32, 33, 36, 41, and 45-47 have been amended as follows:

12. (Amended) Synchronizing device for a shift transmission, [with] comprising at least one outer and one inner synchro ring and[, if appropriate,] at least one intermediate ring, the synchro rings and the intermediate ring in each case having conical surfaces, via which they are connected at least indirectly to one another, and at least one of the synchro rings and[/or] the intermediate ring [consisting of] including a metallic basic material, wherein at least one of the synchro rings and the intermediate ring [consist of] include the metallic basic material which is nitride-hardened in such a way that, by process parameters being

set during nitride-hardening, one of a non-metallic γ'-connecting layer and a non-metallic ε-connecting layer is formed on a conical surface of at least one of the synchro rings and the intermediate ring.

13. (Amended) Synchronizing device according to Claim 12, wherein a γ'-connecting layer is formed which [consists of] includes Fe_4N.

14. (Amended) Synchronizing device according to Claim 12, wherein a ε-connecting layer is formed which includes Fe_2N or Fe_3N [consists of $Fe_{2.3}N$].

19. (Amended) Synchronizing device according to Claim 12, wherein [the] nitriding depth is 200 to 800 μm.

20. (Amended) Synchronizing device according to Claim 12, wherein the γ'-connecting layer and the ε-connecting layer is 1 to 20 μm[, preferably approximately 10 μm,] thick.

23. (Amended) Synchronizing device according to Claim 13, wherein a ε-connecting layer is formed which includes Fe_2N or Fe_3N [consists of $Fe_{2.3}N$].

32. (Amended) Synchronizing device according to Claim 13, wherein [the] nitriding depth is 200 to 800 μm.

33. (Amended) Synchronizing device according to Claim 14, wherein [the] nitriding depth is 200 to 800 μm.

36. (Amended) A synchronizing device assembly according to Claim 34, wherein said first synchro ring is nitride hardened to form a non-metallic ε-connecting layers of Fe_2N or Fe_3N [$Fe_{2.3}N$] on said first friction surface.

41. (Amended) A synchronizing device assembly according to Claim 34, wherein [the] nitriding depth on the first synchronizing is between 200 and 800 [μg] μm.

45. (Amended) A method according to Claim 44, [wherein] <u>further comprising nitride hardening</u> said first synchro ring [is nitride hardened] to form a non-metallic γ'-connecting layers of Fe_4N on said first friction surface.

46. (Amended) A [synchronizing device assembly] <u>method</u> according to Claim 44, [wherein] <u>further comprising nitride hardening</u> said first synchro ring [is nitride hardened] to form a non-metallic ε-connecting layers of <u>Fe_2N or Fe_3N</u> [$Fe_{2.3}N$] on said first friction surface.

47. (Amended) A [synchronizing device assembly] <u>method</u> according to Claim 44, [wherein] <u>further comprising plasma-nitride-hardening</u> said first synchro ring [is plasma-nitride-hardened].